

# CONSULTATION RESPONSE

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Roadmap for the  
reduction of whole life  
carbon emissions of  
buildings in the EU



# ROADMAP FOR THE REDUCTION OF WHOLE LIFE CARBON EMISSIONS OF BUILDINGS IN THE EU

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Bellona welcomes the Commission's initiative to develop a roadmap for reducing whole life carbon (WLC) emissions in buildings, as part of the Renovation Wave.

With the status of current EU policies, Bellona believes that developing complementary policy is needed. There is still a gap between what the current EU policies can achieve in terms of environmental impact of buildings and construction products, and the decarbonisation goals of the EU. Even considering the advancements that the revision of relevant policies (CPR, ESPR, EPBD) could bring, as things stand now they give no guarantees that whole life carbon will be tackled to the sufficient extent and at the needed pace.

## WHAT NEEDS TO BE DONE?

### More common approaches at EU level

With some member states establishing their own policies tackling embodied carbon, a lack of harmonisation or common approach at EU level could prove a hurdle to decarbonisation of the whole European sector. Therefore, new EU policies aiming to harmonise are needed.

### Mandatory green public procurement for low-carbon materials

One underutilised policy tool that would enable the creation of lead markets for low-carbon materials -and thus reducing embodied carbon- is to set mandatory environmental criteria on public procurement which represent a significant share of the tender. The current largely voluntary nature of procurement provisions, including in the mentioned sectoral legislation, is insufficient to trigger necessary action. With green public procurement (GPP) sending a clear signal, lead markets would be created, which would in turn make the option more attractive to the private sector.

### Ensure functioning of existing policy

On the ETS, it is positive that there is a clear timeline for the phase out of free allocation, leading the business case for emission reduction technologies to become clearer with that foresight. However, it is important to ensure that decarbonisation projects in industry are supported and incentivised through other means as well. Recycling allowances through the Innovation Fund along with other financial support is vital for European industrial decarbonisation. CBAM is also an important tool, particularly in steel and iron production, but it needs to account for the full embodied emissions of a material.

## ACTION AREAS: POTENTIAL AND FEASIBILITY

		Colour code		
		Embodied carbon related action areas	Operational carbon related action areas	
Feasibility	Very high	Potential for WLC reduction		
		Very High	High	Low
		Very high	<ul style="list-style-type: none"> <li>• Making use of currently empty buildings</li> <li>• Prioritising renovation, repair and maintenance over demolition and new construction</li> </ul>	<ul style="list-style-type: none"> <li>• Ensuring that residential buildings do not remain under-occupied over the long term</li> <li>• Apply waste prevention strategies</li> </ul>
High	<ul style="list-style-type: none"> <li>• Reduce the greenhouse gas intensity of energy supply</li> <li>• Promote energy efficient renovation to reduce the energy use of existing buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that any new buildings are designed to be high energy performing</li> </ul>		
High	<ul style="list-style-type: none"> <li>• Extending the lifespan of buildings</li> <li>• using buildings more intensively<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Design and use elements that can be easily re-used at the end of their service life</li> <li>• Increase the recycled contents of new construction products</li> <li>• Reduce emissions from construction sites</li> <li>• Minimise transport related emissions of material waste</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage the use of carbon storage in construction products</li> <li>• Improve the management of energy use in existing buildings</li> </ul>	

*It is important to clarify that the potential for reduction of the proposed action areas related to embodied carbon has been estimated under the assumption that the counterfactual is that a new building would have been built instead of taken said measures. In those cases, the reduction in emissions only happens when the reuse of the building substitutes new construction. All policies enacted in those areas of action must reflect that. Recycling measures are already being implemented largely in the construction industry. Any policies in regards to it should take into consideration current practices, ensure additional action and target areas that are lagging behind in recycling, if there are any.*

- Whole life cycle emissions of individual buildings should be measured in the same way across the EU.
- It is necessary to define maximum values for whole life carbon for some or all categories of individual buildings.

Regarding reducing emissions from construction sites, it is important to note that there is zero-emission construction machinery available in the market. Cities like Oslo that have implemented zero-emission sites successfully, and others, like Amsterdam, are following suit. Most often than not building constructions takes place in urban areas with sufficient connection to the grid. The feasibility to act is again at least high by implementation of the right demand-side mechanisms (e.g. mandatory green public procurement, or embodied carbon thresholds). From the supply side, there are plenty manufacturers of machinery that have several commercialised products or have prototypes ready and are waiting for the right market signals to develop at scale, if they aren't already.

Regarding minimising transport-related emissions: optimising logistics can play a huge role, which has an easy-enough implementation from an engineering point of view, and developments in smart sensors and data collection make it easier than ever with a minimal -if at all- increase in price.

## SUPPORTIVE POLICIES FOR REDUCING WLC

		Potential for WLC reduction		
		Very High	High	Low
Feasibility	Very high	<ul style="list-style-type: none"> <li>• Requirements to set national WLC roadmaps with quantified targets</li> <li>• Include consideration of WLC in national construction and new housing plans and targets</li> <li>• Include consideration of WLC in national plans for renovation</li> </ul>	<ul style="list-style-type: none"> <li>• Mandatory reporting of whole life carbon</li> <li>• Mandatory carbon footprint declaration of construction products</li> <li>• Support capacity building of public authorities and their mandate bodies to assess WLC</li> <li>• General awareness raising and media campaigns</li> </ul>	
	High		<ul style="list-style-type: none"> <li>• Use of sustainability scores such as the EU Taxonomy for Sustainable Activities to identify sustainable whole life carbon</li> <li>• Targeted support to facilitate upskilling and/or reskilling of different parts of the supply side</li> <li>• Capacity building, education and training for stakeholders not directly involved on-site</li> </ul>	

## THE IMPORTANCE OF WLC THRESHOLDS

- Whole life cycle emissions of individual buildings should be measured in the same way across the EU.
- it is necessary to define maximum values for whole life carbon for some or all categories of individual buildings.

Mandatory maximum values for whole life carbon are a necessary lever to enable WLC reductions. They have a direct impact in stakeholders' decisions, and send the needed signals to the market -promoting the use of low carbon alternatives-, while providing a solid reference for emissions that is in line with decarbonisation objectives. Of course, that is not to say that different categories of individual buildings should not have a different maximum value, as WLC characteristics of a renovated building are different than those of a new one.

- The EU should set the general direction and ambition of the thresholds in line with decarbonisation goals, and collaborate with national governments in setting the maximum values and update building codes.
- Bellona considers that the most effective approach would be to set building-level maximum values with separate indicators for embodied and operational emissions and a combined whole-life carbon indicator.
- Maximum values should be applied to new buildings and renovations, both residential and non-residential buildings.

## CONCLUSIONS

**The EU-level framework should boost the collaboration with actors at national and local level, and ensure that it takes the necessary steps to meet the EU's decarbonisation goals and climate targets.**

**Policies that reduce the need for new buildings, not only through renovation but also repurposing and retrofitting, and that are complementary to the existing legislation, should be developed.**

**Upskilling of workers will be necessary, from promoters and architects to integrate low-carbon materials in their designs, to construction workers to be able to deploy innovative building techniques. The EU should take the necessary measures to bridge the skills gap.**

**All measures should be taken in alignment with a just transition, ensuring that the cost of WLC measures does not fall disproportionately on the citizens.**

## PUBLICATIONS THAT HAVE INFORMED THE ANSWERS OF THE CONSULTATION

### *Non-exhaustive list*

Whole life carbon models for the EU27 to bring down embodied carbon emissions from new buildings: review of existing national legislative measures.  
Ramboll (2022).

The Case for Updating EU Procurement Policy.  
Marika Andersen. Bellona Europa (2023).

Green Public Procurement: a key to decarbonizing construction and road transport in the EU.  
Astrid Nilsson Lewis, Kaidi Kaaret, Eileen Torres Morales, Evelin Piirsalu, and Katarina Axelsson  
Stockholm Environment Institute (SEI), (2023)  
DOI: <https://doi.org/10.51414/sei2023.007>

Is Carbon Capture and Storage (CCS) Really So Expensive? An Analysis of Cascading Costs and CO2 Emissions Reduction of Industrial CCS Implementation on the Construction of a Bridge.  
Sai Gokul Subraveti, Elda Rodríguez Angel, Andrea Ramírez, and Simon Roussanaly  
Environmental Science & Technology (2023) 57 (6), 2595-2601  
DOI: [10.1021/acs.est.2c05724](https://doi.org/10.1021/acs.est.2c05724)

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Bellona Europa is an independent, non-profit organisation that meets environmental and climate challenges head-on. We are result-oriented and have a comprehensive and cross-sectoral approach to assess the economics, climate impacts and technical feasibility of necessary climate solutions. To do this, we work with civil society, academia, governments and polluting industries.